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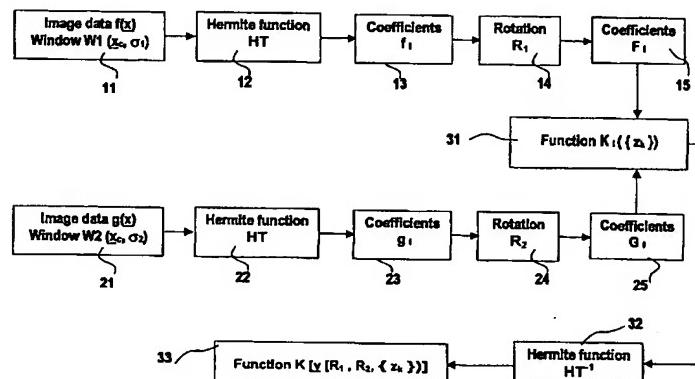
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(54) Title: IMAGE PROCESSING SYSTEM AND MEDICAL EXAMINATION APPARATUS FOR CORRELATING FEATURES IN MEDICAL IMAGES



(57) Abstract: An image processing system, for correlating shapes in multi-dimensional images (m-D), comprising image data processing means for estimating a similarity measure including computing means for: estimating two image signals ( $f(x)$ ,  $g(y)$ ) representing shapes defined in respective windows ( $W_1$ ,  $W_2$ ) in two multi-dimensional images; using a Hermite Transform (HT) applied to both said image signals for performing an evaluation of two first sets of scalar valued Hermite coefficients ( $f_1$ ,  $g_1$ ,  $F_1$ ,  $G_1$ ), from which a combination yields a transformed set of scalar valued Hermite coefficients  $\{K_1\}$ ; applying the inverse Hermite Transform (HT-1) to the transformed set of scalar valued Hermite coefficients  $\{K_1\}$  to achieve the computation of a windowed correlation function ( $K(v)$ ); and estimating the maximum of said windowed correlation function as the wanted similarity measure to correlate the shapes; and means for displaying the correlated shapes and/or processed images. This system has means for applying rotation, translation and scale change on the scalar valued Hermite coefficients of the image signals and the correlation function, instead of on the images. This system can correlate very complex shapes having parts that locally show different deformations from the global complex shapes. The invention also relates to an examination apparatus coupled to this image processing system.

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